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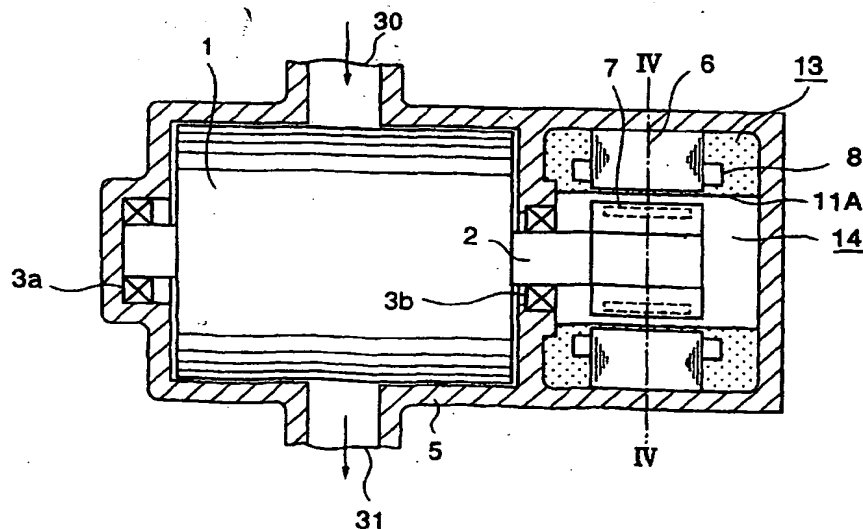
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(54) **Gas transfer machine**

(57) A gas transfer machine for use as a vacuum pump, for example, has a pump rotor mounted on a rotatable shaft for transferring a gas, and a reluctance-type motor for rotating the rotatable shaft. The reluctance-type motor has a stator, a motor rotor surrounded by the stator, and a shield member isolating the stator from the motor rotor. The motor rotor is directly coupled to the rotatable shaft and has a plurality of magnetic salient poles.

tance-type motor has a stator, a motor rotor surrounded by the stator, and a shield member isolating the stator from the motor rotor. The motor rotor is directly coupled to the rotatable shaft and has a plurality of magnetic salient poles.

FIG. 3





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Application Number
EP 00 11 6875

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	WO 97 08808 A (SULZER ELECTRONICS AG ; LUST ANTRIEBSTECHNIK GMBH (DE); SCHOEB RETO) 6 March 1997 (1997-03-06) * page 12, line 1 - page 13, line 18 *	1,3	H02K5/128 H02K3/44 H02K19/06 H02K19/10 F04D25/06
Y	* page 14, line 34 - page 15, line 29; figures 6,9 *	2,4,5	
X	WO 96 09683 A (LUNGU IANCU) 28 March 1996 (1996-03-28)	1,3	
A	* page 11, line 10 - page 12, line 6; figures 8,9 *	2,4,5	
Y	US 4 995 159 A (HANCOCK CLYDE J ET AL) 26 February 1991 (1991-02-26) * column 12, line 47 - column 13, line 13; figure 10 *	2	
Y	US 5 841 212 A (MITA MASAHIRO ET AL) 24 November 1998 (1998-11-24) * column 5, line 9 - line 31 * * column 7, line 14 - line 48; figure 2 *	4,5	
A	EP 0 889 574 A (TOKYO SHIBAURA ELECTRIC CO) 7 January 1999 (1999-01-07) * abstract; figures 4,10 *	1,4	H02K F04D
A	PATENT ABSTRACTS OF JAPAN vol. 1999, no. 11, 30 September 1999 (1999-09-30) & JP 11 166500 A (TOSHIBA AVE CO LTD; TOSHIBA CORP), 22 June 1999 (1999-06-22) * abstract; figures 1,5-12 *	1,2	
-/-			
The present search report has been drawn up for all claims.			
Place of search MUNICH		Date of completion of the search 29 April 2003	Examiner Türk, S
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

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EUROPEAN SEARCH REPORT

Application Number
EP 00 11 6875

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
A	PATENT ABSTRACTS OF JAPAN vol. 1999, no. 01, 29 January 1999 (1999-01-29) & JP 10 288191 A (DAIKIN IND LTD), 27 October 1998 (1998-10-27) * abstract; figures 1,2 * -----	1	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
The present search report has been drawn up for all claims			
Place of search MUNICH		Date of completion of the search 29 April 2003	Examiner Türk, S
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03 82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 00 11 6875

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The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

29-04-2003

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9708808	A	06-03-1997	WO 9708807 A1	06-03-1997
			WO 9708808 A1	06-03-1997
			DE 59603933 D1	20-01-2000
			DE 59607099 D1	19-07-2001
			EP 0846364 A1	10-06-1998
			EP 0846365 A1	10-06-1998
			US 5939813 A	17-08-1999
WO 9609683	A	28-03-1996	RO 117883 B1	30-08-2002
			AT 182040 T	15-07-1999
			BR 9509072 A	23-12-1997
			CN 1161764 A ,B	08-10-1997
			DE 59506367 D1	12-08-1999
			EP 0782781 A1	09-07-1997
			EP 0866547 A1	23-09-1998
			EP 0869601 A2	07-10-1998
			ES 2135768 T3	01-11-1999
			JP 10505998 T	09-06-1998
			JP 3142575 B2	07-03-2001
			WO 9609683 A1	28-03-1996
			RU 2198459 C2	10-02-2003
			US 6262510 B1	17-07-2001
US 4995159	A	26-02-1991	US 4883999 A	28-11-1989
			US 5015903 A	14-05-1991
			CA 1300215 A1	05-05-1992
			EP 0395747 A1	07-11-1990
			JP 4501199 T	27-02-1992
			WO 9001823 A1	22-02-1990
			CA 2003025 A1	28-09-1990
			EP 0465462 A1	15-01-1992
			WO 9011641 A1	04-10-1990
US 5841212	A	24-11-1998	JP 9285050 A	31-10-1997
EP 0889574	A	07-01-1999	JP 3170224 B2	28-05-2001
			JP 11027913 A	29-01-1999
			JP 3280896 B2	13-05-2002
			JP 11136912 A	21-05-1999
			JP 3290392 B2	10-06-2002
			JP 11136890 A	21-05-1999
			CN 1204883 A ,B	13-01-1999
			DE 69808994 D1	05-12-2002
			EP 0889574 A1	07-01-1999
			US 6087751 A	11-07-2000

EPO FORM P0459

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 00 11 6875

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The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

29-04-2003

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
JP 11166500	A	22-06-1999	NONE	

JP 10288191	A	27-10-1998	NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82